



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,741	07/15/2003	Ichiro Kasai	15162/06000	7021
24367	7590	08/19/2004	EXAMINER	
SIDLEY AUSTIN BROWN & WOOD LLP 717 NORTH HARWOOD SUITE 3400 DALLAS, TX 75201				BOUTSIKARIS, LEONIDAS
ART UNIT		PAPER NUMBER		
		2872		

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/619,741	KASAI, ICHIRO
	<b>Examiner</b>	<b>Art Unit</b>
	Leo Boutsikaris	2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 July 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-7 and 9-13 is/are rejected.
- 7) Claim(s) 8 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 15 July 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/14/04.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

BEST AVAILABLE COPY

## DETAILED ACTION

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-7, 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Amanai (US 2004/0109208).

Regarding claim 1, Amanai discloses an optical system (Fig. 1) comprising:  
a holographic optical element 6 including a plurality of holograms that have been recorded with different color light, i.e., they have diffraction efficiency in different wavelength bands, R, G, B; and a transmissive optical element in the form of prisms 3 and 4, wherein the holographic optical element is such that it corrects chromatic aberration for the light that is transmitted through the prisms ([0059]-[0060], [0205], [0218]).

Regarding claim 3, the holographic optical element 6 corrects for lateral chromatic aberration ([0059]-[0060]).

Regarding claim 4, the transmissive optical element causing the chromatic aberration is a prism 3 and 4.

Regarding claim 5, the holographic optical element 6 is a reflective hologram ([0205]).

Regarding claim 6, the holographic optical element has a positive optical power ([0061]).

Regarding claims 7, 9-10, the optical system of Fig. 1 is an information display system comprising a display element 5, in the form of an LCD that displays color images, a prism 3 that transmits an image light incident thereon from the display element, and furthermore, the holographic optical element is formed on a concave free-form reflective surface so as to function as an eyepiece lens by directing the image light from the display element 5 to an observer's eye 1 (Fig. 1, [0189], and [0073]).

Claims 1-2 are rejected under 35 U.S.C. 102(e) as being anticipated by Popovich (US 2003/0164996).

Regarding claim 1, Popovich discloses an optical system (Fig. 18) comprising: a holographic optical element 1804 including a plurality of holograms that have been recorded with different color light, i.e., they have diffraction efficiency in different wavelength bands, R, G, B; and a transmissive optical element in the form of prism 1802, wherein the holographic optical element is such that it corrects chromatic aberration for the light that is transmitted through the prism ([0080]-[0081]).

Regarding claim 2, the holographic optical element 1804 corrects for longitudinal chromatic aberration for light of different wavelengths that is transmitted through the refractive glass plate 1802.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hazama (US 6,256,123).

Regarding claim 11, Hazama discloses a method for fabricating a holographic optical element comprising a plurality of holograms each recorded with different color light, wherein at each successive step, object light of a particular color, e.g., B, R, or R, having passed through mask 15, is focused by optical system 18 onto holographic material 14a, where it is made to interfere with corresponding reference light (Fig. 4 and line 55, col. 7 to line 26, col. 8). In other words, from one step to a next, the wavelength of the light beam irradiating the holographic material is changed, and furthermore, the wavefront of the light that is incident on the holographic material changes as well, due to the dispersive property of the optical member 18 (e.g., optical length changes according to wavelength).

Regarding claim 12, optical member 18 is a transmissive optical element.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hazama (US 6,256,123).

Hazama discloses all the limitations of the above claim except for teaching that the optical element 18 is a diffractive element. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a diffractive lens in the recording process depicted in Fig. 4, since Official Notice is taken that diffractive elements are used as focusing means in optical systems, since diffractive elements offer great flexibility in choosing the operational parameters of the element, as well as being relatively small, light and easy to manufacture.

#### *Allowable Subject Matter*

Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 8 is allowable over the prior art of record for at least the reason that even though the prior art discloses display optical systems incorporating multiple holograms for correcting lateral chromatic aberration, the prior art fails to teach or reasonably suggest an information display optical system, wherein the corrected aberration is longitudinal chromatic aberration, as set forth by the claimed combination.

Art Unit: 2872

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo Boutsikaris, Ph.D.  
Patent Examiner, AU 2872  
August 17, 2004



**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER: Black Spot**

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**